可程控直流電源供應器
PROGRAMMABLE DC POWER SUPPLY
MODEL 62000P SERIES

Chroma 62000P 系列可程控直流電流供應器，提供許多獨特功能供ATE整合與測試使用。這些功能包括定功率操作範圍、精準的輸出電流和電壓量測、輸出觸發信號，以及可模擬複雜的DC暫態波形以便測試設備的瞬斷、壓升與其他電壓間偏差的能力。62000P是高準確度可程控直流電源供應器的新標準，專門設計予自動化測試於D2D轉換器和其他類似產品使用。

62000P系列包含12個不同的機型，從600W到5000W以及120A到600V。由於單一儀器可提供的定功率操作範圍包含高電壓/低電流和低電壓/高電流，因此可減少一般ATE應用所須的直流電源供應器數量。

62000P系列同時具備16 bit高解析度的準確電壓和電流讀值回讀功能，這表示系統不再須要複雜額外的分流器/電壓表，才能量測準確的待測物輸入參數讀值。62000P 電源供應器亦具有 I/O 埠可提供 8 bit TTLs、DC-ON、保護輸出信號、遠端抑制功能以及系統時序量測的輸出觸發信號。

62000P系列電源供應器另一個獨特的功能為可建立複雜的 DC 暫態波形。此功能可對設備進行輸入電壓漏失、瞬斷和其他電壓變化等測試，是用於飛機設備測試、反用換流器測試和其他會產生電壓中斷之設備測試的理想選擇。其應用的範圍包括 DC/DC 轉換器和逆變器的壓降測試、引擎啓動模擬、電池自動充電、電子產品生命週期測試等等。

MODEL 62000P 系列

特點

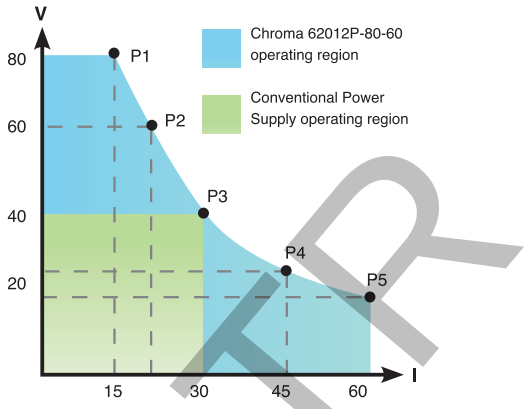
- 定功率操作下允許多種電壓和電流組合輸出
- 電壓輸出範圍 : 0 ~ 600V ;
  電流輸出範圍 : 0 ~ 120A ;
  功率輸出範圍 : 600W, 1200W, 2400W, 5000W
- 數位旋鈕、鍵盤及功能按鈕操作
- 高功率因素到 0.95
- 高速可程式控制介面
- 精準的電壓及電流量測
- 具有主/ 從控制介面於並聯操作模式下達到均流
- 電壓漸升/降功能:時間 (5ms~99hours)
- 具有 10 組可程式控制及 100 個步驟設定電壓 / 電流 / 8 bit TTL 訊號輸出
- 電壓及電流斜率控制
- 過電壓、限電流及過溫度保護功能
- 電壓補償可達5V
- APG (Analog Programmable Interface) 類比訊號控制介面
- 可選購 GPIB 或乙太網路控制介面
- 標準的 RS-232 & USB 控制介面
- LabView 及 Labwindows 控制驅動程式
- 具有 CE 認證

USB RS-232 GPIB Ethernet CE RoHS2 Compliant

Chroma

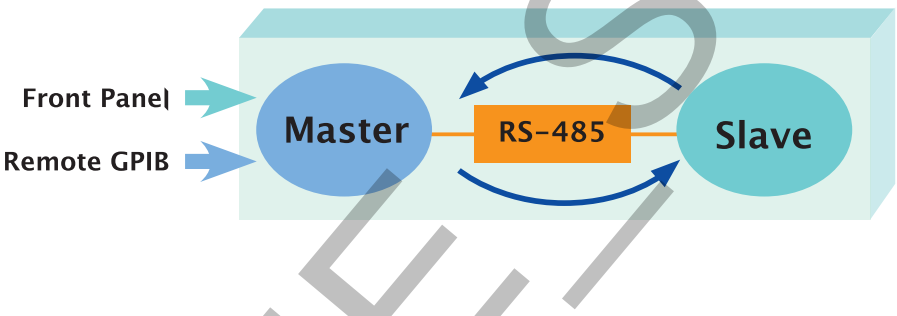
定功率範圍下提供寬廣操作

62000P系列直流電源供應器提供寬廣的操作範圍。例如，62012P-80-60的輸出規格為1200W/80V/60A可於不同的組合中靈活操作如圖右側所示。如普通的直流電源電源供應器顯示提供所有的輸出電壓相同的額定電流，而62000P於低輸出電壓時提供較大的電流。這表示低電壓/高電流及高電壓/低電流兩者的待測物可使用單台直流電源供應器測試輸入穩定度，於一般的ATE系統內部避免多台直流電源供應器以節省成本與空間。



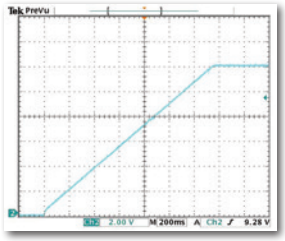
主/從並聯&串聯控制

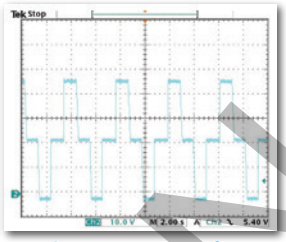
當需要高功率時，一般以並聯或串聯連接兩個或多個直流電源供應器。62000P系列直流電源供應器具有智慧型主/從式控制模式使串聯/並聯能快速並簡單操作。於此模式中，主機測量數值可下載資料至從屬儀器，因此，可簡易編程並自動均流。

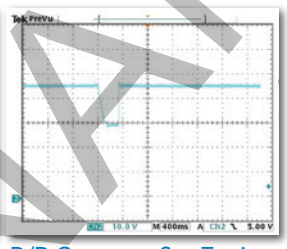


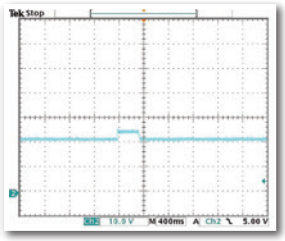
編程序列功能及應用

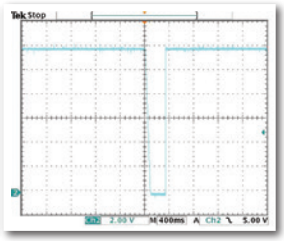
62000P系列直流電源供應器提供100個步階，具有時間設定值的使用者可程控序列，範圍為5ms～15000s，電壓及電流斜率控制與自動化測試應用的 8 bit TTL 訊號輸出。其應用的範圍包括 DC/DC 轉換器和逆變器的壓降測試、引擎啓動模擬、電池自動充電、產品壽命週期測試及飛機航空測試等等。

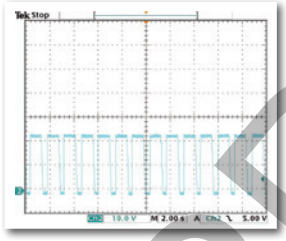

Soft Start Testing

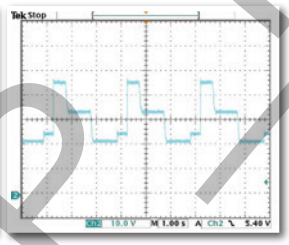

Voltage Step Waveform

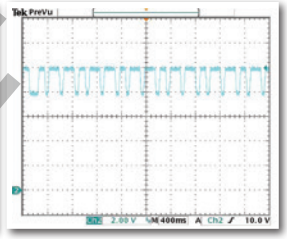

D/D Converter Sag Testing

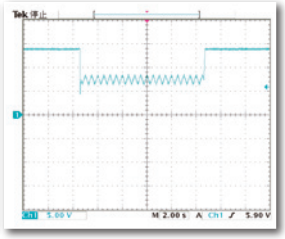

D/D Converter Surge Testing

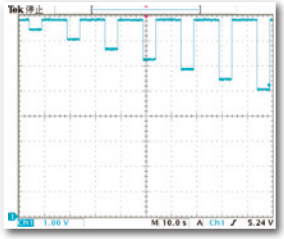

D/D Converter Cycle drop Testing

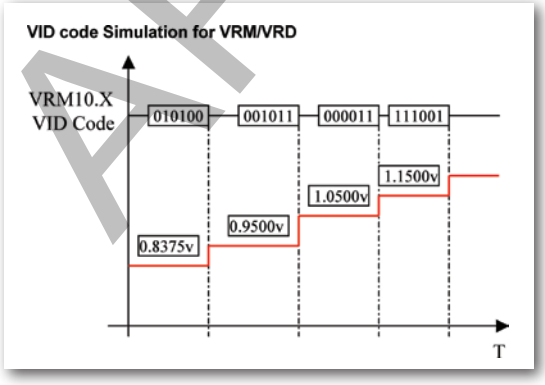

Pulse Charge of Battery


Life Cycle Testing


Line Regulation Testing


Starting Profile of ISO 16750-2


Reset Behavior at Voltage Drop of ISO 16750-2

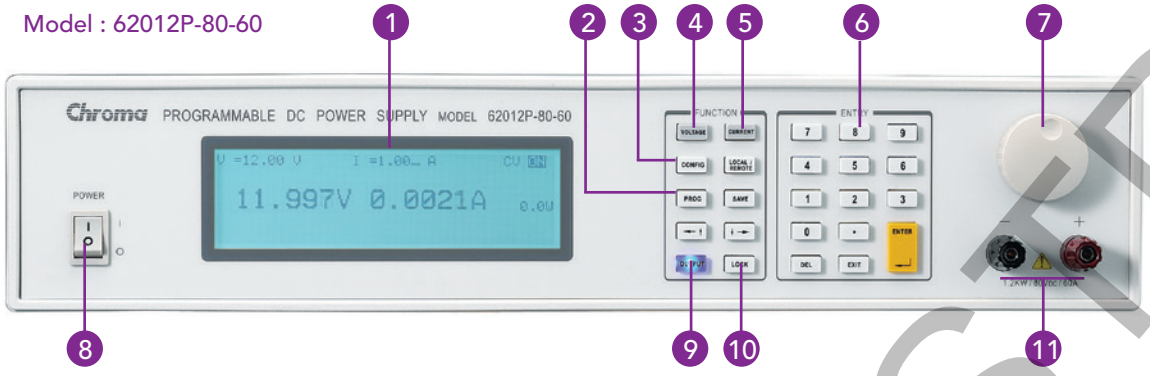


62000P供應器提供8個時序控制輸出TTL位元。這些控制線可使用於VRM的VID控制或控制其他個別的信號。


62050P-100-100

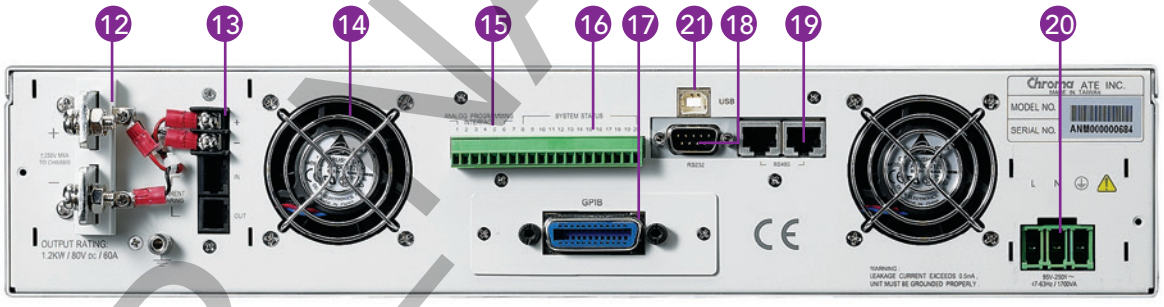
面板說明

Model : 62012P-80-60



1.	LCD 顯示器	顯示設定, 量測及操作狀態指示
2.	PROG 功能鍵	程序步階電壓及電流設定選擇
3.	CONFIG 功能鍵	系統內部參數設定
4.	電壓設定鍵	設定輸出電壓值
5.	電流設定鍵	設定輸出限電流值
6.	數字鍵	數字輸入
7.	旋鈕	旋鈕調整設定
8.	AC電源開關	開關機控制
9.	輸出ON/OFF控制鍵	輸出啓動及失能控制
10.	安全鎖鍵	安全鎖啓動及失能控制
11.	前面板直流輸出端	輸出連接端子至負載

Model : 62012P-80-60



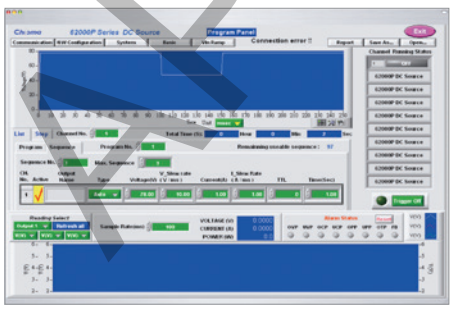
12.	後背板直流輸出端子	輸出連接端子至負載
13.	遠端回援端子	遠端回援連接端子至負載
14.	系統散熱風扇	
15.	類比控制介面	類比輸入/出控制&監控電壓及電流
16.	系統輸入/出埠	系統輸入/出訊號，如 8 bit TTL, DC-ON, 錯誤訊號輸出及控制ON/OFF
17.	GPIB介面(選配)	GPIB & Ethernet (二選一)
18.	RS-232介面	
19.	RS-485介面	主從串/並聯用數位訊號溝通介面
20.	AC輸入端子	
21.	USB介面	

電氣規格表 -1

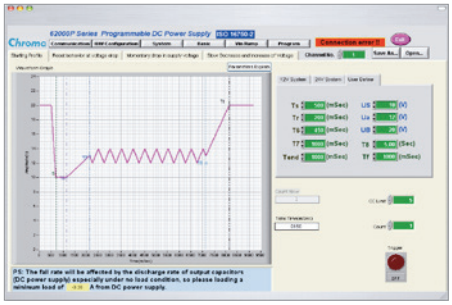
Model	62006P-30-80	62006P-100-25	62006P-300-8	62012P-40-120	62012P-80-60	62012P-100-50
Output Ratings						
Output Voltage	0~30V	0~100V	0~300V	0-40V	0~80V	0~100V
Output Current	0~80A	0~25A	0~8A	0-120A	0~60A	0~50A
Output Power	600W	600W	600W	1200W	1200W	1200W
Line Regulation						
Voltage	0.01%+2mV	0.01%+6mV	0.01%+18mV	0.01%+2mV	0.01%+8mV	0.01%+10mV
Current	0.01%+25mA	0.01%+5mA	0.03%+20mA	0.01%+25mA	0.01%+10mA	0.01%+12mA
Load Regulation						
Voltage	0.01%+3mV	0.01%+10mV	0.01%+50mV	0.01%+3mV	0.01%+12mV	0.01%+18mV
Current	0.01%+10mA	0.01%+5mA	0.03%+40mA	0.01%+10mA	0.01%+20mA	0.01%+28mA
Voltage Measurement						
Range	6V/30V	20V/100V	60V/300V	8V/40V	16V/80V	20V/100V
Accuracy	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.
Current Measurement						
Range	16A/80A	5A/25A	1.6A/8A	24A / 120A	12A/60A	10A/50A
Accuracy	0.1% + 0.2%F.S.	0.1% + 0.2%F.S.	0.1% + 0.1%F.S.	0.1% + 0.1%F.S..	0.1% + 0.1%F.S.	0.1% + 0.1%F.S.
Output Noise (0 ~ 20MHz)						
Voltage Ripple (P-P)	60 mV	85 mV	580 mV	90 mV	100 mV	100 mV
Voltage Ripple (rms)	8 mV	10 mV	80 mV	10 mV	10 mV	15 mV
Current Ripple (rms)	60 mA	10 mA	60 mA	120 mA	30 mA	20 mA
OVP Adjustment Range	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax
Slew Rate Range						
Voltage	0.001V - 5V/ms	0.001V - 10V/ms	0.01V - 10V/ms	0.001V - 5V/ms	0.001V - 10V/ms	0.001V - 10V/ms
Current	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms
Programming Response Time (Typical)						
Rise Time (Full & No Load)	6 ms	10 ms	30 ms	8 ms	8 ms	10 ms
Fall Time	350ms (max)	300 ms (max)	2.5 s (max)	460 ms (max)	240 ms (max)	300 ms (max)
Efficiency	0.75	0.75	0.75	0.8	0.8	0.8
Drift (8 hours)						
Voltage	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax
Current	0.04% of Imax	0.04% of Imax	0.04% of Imax	0.04% of Imax	0.04% of Imax	0.04% of Imax
Temperature Coefficient						
Voltage	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C
Current	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C
Transient Response Time	3 mS	3 mS	3mS	3mS	3 mS	3 mS
10 % step change	150 mV	180 mV	600 mV	150 mV	250 mV	250 mV
Voltage limit @ Series Mode	150V	500V	800V	200V	400V	500V
AC Input Operating Voltage Ranges	1Ø 100~240Vac ± 10% V_{LN}, 47~63 Hz					
Operating Temperature	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C
Dimension (H x W x D)	89 x 430 x 425 mm / 3.5 x 16.93 x 16.73 inch					
Weight	12kg / 26.43 lbs	12.1 kg / 26.65 lbs	11.2 kg / 24.67 lbs	12kg / 26.43 lbs	13 kg / 28.63 lbs	12.1 kg / 26.65 lbs

所有規格如有變更，恕不另行通知。

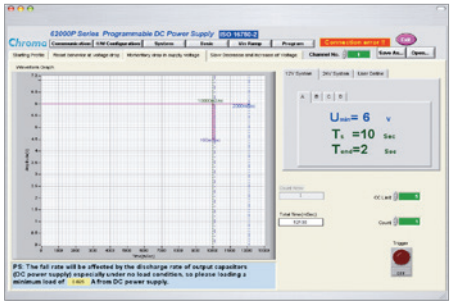
圖形化操作介面



Transient Voltage Programming



ISO 16750-2 4.5.3 啓動電壓試驗曲線



ISO 16750-2 4.5.1 電壓瞬間中斷試驗曲線

電氣規格表 -2

Model	62012P-600-8	62024P-40-120	62024P-80-60	62024P-100-50	62024P-600-8	62050P-100-100
Output Ratings						
Output Voltage	0~600V	0-40V	0~80V	0~100V	0-600V	0~100V
Output Current	0~8A	0-120A*1	0~60A	0~50A	0-8A	0~100A
Output Power	1200W	2400W*1	2400W	2400W	2400W	5000W
Line Regulation						
Voltage	0.01%+18mV	0.01%+2mV	0.01%+8mV	0.01%+10mV	0.01%+18mV	0.01%+8mV
Current	0.03%+20mA	0.01%+25mA	0.01%+10mA	0.01%+12mA	0.03%+20mA	0.01%+24mA
Load Regulation						
Voltage	0.01%+50mV	0.01%+3mV	0.01%+12mV	0.01%+18mV	0.01%+50mV	0.01%+12mV
Current	0.03%+40mA	0.01%+10mA	0.01%+20mA	0.01%+28mA	0.03%+40mA	0.01%+56mA
Voltage Measurement						
Range	120V/600V	8V / 40V	16V/80V	20V/100V	120V / 600V	20V/100V
Accuracy	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.	0.05% + 0.05%F.S.
Current Measurement						
Range	1.6A/8A	24A / 120A	12A/60A	10A/50A	1.6A / 8A	20A/100A
Accuracy	0.1% + 0.1%F.S.	0.1% + 0.1%F.S.	0.1% + 0.1%F.S.	0.1% + 0.1%F.S.	0.1% + 0.1%F.S.	0.1% + 0.1%F.S.
Output Noise (0 ~ 20MHz)						
Voltage Ripple (P-P)	580 mV	90 mV	100 mV	100 mV	780 mV	50 mV
Voltage Ripple (rms)	140 mV	10 mV	10 mV	15 mV	200 mV	15 mV
Current Ripple (rms)	60 mA	120 mA	30 mA	20 mA	120 mA	40 mA
OVP Adjustment Range	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax	110% of Vset to 110% of Vmax
Slew Rate Range						
Voltage	0.01V - 10V/ms	0.001V - 5V/ms	0.001V - 10V/ms	0.001V - 10V/ms	0.01V - 10V/ms	0.001V - 10V/ms
Current	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 1A/ms	0.001A - 2A/ms
Programming Response Time (Typical)						
Rise Time (Full & No Load)	60 ms	8 ms	8 ms	10 ms	60 ms	10 ms
Fall Time	5 s (max)	460 ms (max)	240 ms (max)	300 ms (max)	5 s (max)	850 ms (max)
Efficiency	0.8	0.8	0.85	0.85	0.8	0.85
Drift (8 hours)						
Voltage	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax	0.02% of Vmax
Current	0.04% of Imax	0.04% of Imax	0.04% of Imax	0.04% of Imax	0.04% of Imax	0.04% of Imax
Temperature Coefficient						
Voltage	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C	0.02% of Vmax/°C
Current	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C	0.04% of Imax/°C
Transient Response Time	3mS	3mS	3mS	3mS	3mS	3mS
10 % step change	600 mV	150 mV	250 mV	250 mV	600mV	250 mV
Voltage limit @ Series Mode	800V	200V	400V	500V	800V	500 V
AC Input Operating Voltage Ranges	1Ø 100~240Vac ± 10% V_{LN}, 47~63 Hz	1Ø 200~240Vac ± 10% V_{LN}, 47~63 Hz				3Ø 200~240Vac ± 10% V_{LL}, or 3Ø 380~400Vac ±10% V_{LL}, 47~63 Hz
Operating Temperature	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C	0~40°C
Dimension (H x W x D)	89 x 430 x 425 mm / 3.5 x 16.93 x 16.73 inch					176x428x566 mm / 6.93x16.85x22.28 inch
Weight	11.2 kg / 24.67lbs	13 kg / 28.63 lbs	12.2 kg / 26.87 lbs	13 kg / 28.63 lbs	13 kg / 28.63 lbs	28 kg / 61.67 lbs

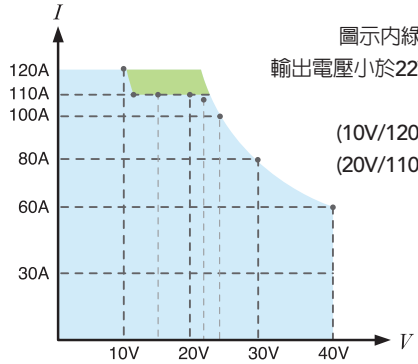
所有規格如有變更，恕不另行通知。

Note *1 : The Max. power limit of 2400W is under output 22V~40V , and see the diagram below for operating power envelope.

訂購資訊

62006P-30-80: 可程控直流電源供應器, 30V/80A/600W
62006P-100-25: 可程控直流電源供應器, 100V/25A/600W
62006P-300-8: 可程控直流電源供應器, 300V/8A/600W
62012P-40-120: 可程控直流電源供應器, 40V/120A/1200W
62012P-80-60: 可程控直流電源供應器, 80V/60A/1200W
62012P-100-50: 可程控直流電源供應器, 100V/50A/1200W
62012P-600-8: 可程控直流電源供應器, 600V/8A/1200W
62024P-40-120: 可程控直流電源供應器, 40V/120A/2400W
62024P-80-60: 可程控直流電源供應器, 80V/60A/2400W
62024P-100-50: 可程控直流電源供應器, 100V/50A/2400W
62024P-600-8: 可程控直流電源供應器, 600V/8A/2400W
62050P-100-100: 可程控直流電源供應器, 100V/100A/5000W
A620004: 62000P系列GPIB 控制介面
A620006: 62000P 2U系列19"機框耳架
A620009: 62000P系列電腦圖形化操作介面Softpanel
A620015: 62050P-100-100專用之19"機框耳架
A620023: 乙太網路控制介面

Model 62024P-40-120



圖示內綠色區域為限制區，當使用於輸出電壓小於22V & 輸出電流大於110A時，詳細可操作範圍如下：
(10V/120A), (11V/110A), (15V/110A), (20V/110A), (22V/109A), (24V/100A), (30V/80A), (40V/60A).

一般規格表

Programming & Measurement Resolution	
Voltage (Front Panel)	10 mV
Current (Front Panel)	10 mA
Voltage (Remote Interface))	0.003% of Vmax
Current (Remote Interface))	0.002% of Imax
Voltage (Analog Programming Interface)	0.04% of Imax
Current (Analog Programming Interface)	0.04% of Imax
Programming Accuracy	
Voltage Programming (Front Panel and Remote Interface)	0.1% of Vmax
Voltage Programming (Analog Programming Interface)	0.2% of Vmax
Current Programming (Front Panel and Remote Interface)	0.3% of Imax
Current Programming (Analog Programming Interface)	0.3% of Imax
Programming Response Time	
Rise Time: For a programmed 5% to 95% step in output voltage. (Full & NoLoad)	See Electrical Specification
Fall Time: For a programmed 95% to 5% step in output voltage. (The fall time will be affected by the external loading from UUT.)	See Electrical Specification
Vout setting (USB send command to DC Power Supply receiver)	10ms
Measure Voltage, Current (under USB command using Fetch)	10ms
Measure Voltage, Current (under USB command using Measure)	70ms
Analog Programming Interface	
Voltage and Current Programming inputs	0~10Vdc or 0~5Vdc of F.S.
Voltage and Current monitor	0~10Vdc or 0~5Vdc of F.S.
Isolation: Maximum working voltage of any analog programming signal with respect to chassis potential	70Vdc
Auxiliary Power Supply	
Output Voltage	12Vdc
Maximum current source capability	10mA
Remote Inhibit Function (I/O)	
Use to disable the output of DC Power Supply; Active Low	TTL
DC-ON Output Signal	
Indicate the output status, Active High	TTL
Fault Output Signal	
Indicate if there is a fault/protection occurred, Active Low	TTL
Series & Parallel operation function with Master / Slave control	
Voltage limit @ Series Mode	See Electrical Specification
Number of DC Power Supplies allowed @ master / slave control mode	5
Auto Sequencing Programmable Function	
Number of program	10
Number of sequence	100
Time Range	5ms ~ 15000S
TTL signal out	8 bits
TTL source capability	7 mA
Auto Sequencing Programmable Function (Step Mode)	
Start Voltage Range	0 ~ full scale
End Voltage Range	0 ~ full scale
Total Run Time Range (hhh:mm:ss.sss)	10ms ~ 99 hours
Slew Rate Control Function	
Voltage slew rate range (The fall rate will be affected by the discharge rate of the output capacitors especially under no load condition.)	See Electrical Specification
Current slew rate range of current	See Electrical Specification
Minimum transition time	0.5 ms
Remote Sense	
Line loss compensation	5V

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